

## ***Frequently Asked Questions Regarding Cassini's Power Source***



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**Bruce Gagnon of the Florida Coalition for Peace and Justice says Cassini could use the European Space Agency's Italian-made, high-efficiency solar cells instead of RTGs. What's your response?**

- Mr. Gagnon is incorrect.
- NASA's Jet Propulsion Laboratory conducted an in-depth analysis of the available electrical power systems, including many different solar, battery, and long life fuel cell power sources and hybrid systems to identify the most appropriate power source for the Cassini mission.
- A JPL study showed that a Cassini spacecraft equipped with the highest efficiency solar cells available (including the new high-efficiency cells under development by ESA) would make the spacecraft too massive for launching to Saturn. The resulting solar arrays would need an area greater than 500 square meters (5,380 square feet) that is over the size of two tennis courts. The dimensions of each array (the spacecraft would require two), would need to be about 9 meters (30 feet) wide and 32 meters (105 feet) long.
- The researchers who developed the ESA solar cells evaluated the JPL solar study and concluded that "LILT solar cells (including those developed by ESA) are not a viable power source alternative for the presently defined Cassini mission of NASA."

**Why can't Cassini use solar-power?**

It was determined that 12 science instruments are needed to investigate Saturn, its rings, moons and magnetosphere over a 4-year period in order to meet the Cassini science objectives that were set by the NASA Solar System Exploration Committee. This results in a spacecraft and instrument power demand of between 600-700 watts of power in outer space. This power must be produced reliably for over 12 years at a distance that is 9 times further from the sun than the earth, and still be small and light enough to be launched from the earth and reach Saturn.

NASA's Jet Propulsion Laboratory conducted an in-depth analysis of the available electrical power systems, including many different solar, battery, and long life fuel cell power sources and hybrid systems to identify the most appropriate power source for the Cassini mission. A Cassini spacecraft equipped with the highest efficiency solar cells available (including the new high-efficiency cells under development by ESA) would make the spacecraft too massive for launching to Saturn. The resulting solar arrays would be over the size of two tennis courts. RTGs are the only feasible power system for the Cassini mission.

For more information on the Cassini mission, please contact:

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